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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/655,295	09/05/2000	David R. Cheriton	102.1061.01	8141

7590 01/21/2004

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EXAMINER	
BARANYAI, LAWRENCE	
ART UNIT	PAPER NUMBER
2665	7

DATE MAILED: 01/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/655,295	CHERITON, DAVID R.	
	Examiner	Art Unit	
	Lawrence Baranyai	2665	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 September 2000*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *05 September 2000* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *4*.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Information Disclosure Statement

1. An initialed and dated copy of Applicant's IDS form 1449, Paper No. 4, is attached to the instant Office action.

Drawings

1. New corrected drawings are required in this application because drawings provided appear to be hand-drawn and include details in the margin area. Applicant is advised to employ the services of a competent patent draftsperson outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance. See 37 CFR 1.84 for details and guidelines on the drawings.

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: fig. 3 step 335 references data structure 150 (missing), step 340 references output interfaces 135 (missing), step 335 references "method 300" which is used for a step of a method. A method is a series of steps and the "method" is normally indicated with a separate label for the set of steps in fig. 3 (missing). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

3. The drawings are objected to under 37 CFR 1.83(a) because they fail to clearly describe the decision steps in fig. 3 steps 335 and 320. Step 335 is a decision to return to method (step?) 300 or proceed (per the arrow) to step 340. Decision steps 320 and 335 should generally be shown in a flow chart using a diamond shaped object with labeled arrows indicating the next step for each outcome. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

4. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference characters "132" and "133" have both been used to designate the same block of fig. 1 which are described as the routing processor and the M-trie Plus engine, respectively. The elements should be shown distinctly since they are described separately in the specification. Similarly, reference characters "210" and "215" have both been used to designate the same block of fig. 2 which are described as the inferior node and the terminal leaf node, respectively. The elements should be shown distinctly since they are described separately in the specification. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

5. The drawings are objected to because of the following informalities. For clarification, major blocks in fig. 1 and fig. 2 should receive a text label. A proposed drawing correction or corrected drawings are required in reply to the Office action to

avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

1. Applicant is reminded of the proper language and format for an abstract of the disclosure per MPEP 608.01(b).

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words and not exceed 25 lines of text. It is important that the abstract not exceed 150 words in length (or 25 lines of text) since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details. Acronyms, if required, should be spelled out in the first instance.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

2. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: Claimed subject matter in claims 14 and 25 reference a "packet label" which is not clearly defined in the specification. A flow label is defined in the Lexicography section on page 9 lines 17-19. Appropriate correction is required.

3. The disclosure is objected to because of the following informalities: The specification contains numerous errors and should be carefully reviewed in its entirety and appropriately corrected. For example - p. 5 line 19 and p. 25 line 14: "contest" should apparently read "content"; p. 12 line 6: "M-trie data 200" should apparently read "M-trie data structure 200"; p. 13 line 8 and p. 14 line 13: the reference to "oppointer 220" is missing from the drawings; p. 15 line 14: "method 300" is shown as "step 300" in fig. 3; p. 16 lines 20 and 22: "opcode 110" is an incorrect reference to fig. 2; p. 16 line 22 and p. 17 line 13: "M-trie Plus data structure 150" is an incorrect reference to fig. 2; p. 17 lines 13-14; "The method 300 proceeds at step 320" is inconsistent with the exit arrow of fig. 3 step 320 and method 300 is a step not a method as previously noted; p. 17 lines 16-17: "output interfaces 135" is a missing reference to fig. 1; p. 25 line 13: "an instructions should apparently read "as instructions"; p. 24 line 22: IOS is not defined. Appropriate correction is required.

4. The disclosure is objected to because of the following informalities: The incorporated disclosures (related art) contains references, which should be updated to reflect their current status. The reference to application 08/886,900 is now abandoned but published as US patent publication US 2001/0051864. Reference 08/655,429 is now patent US 6,243,667. Reference 08/581,134 is now patent US 6,091,725. The references should be updated accordingly.

Claim Objections

1. Claims 15 and 26 are objected to because they include reference characters that are not enclosed within parentheses. Packet header 122 should apparently read packet header (122) to refer to the reference character (122) in figure 1.

Reference characters corresponding to elements recited in the detailed description of the drawings and used in conjunction with the recitation of the same element or group of elements in the claims should be enclosed within parentheses so as to avoid confusion with other numbers or characters which may appear in the claims. See MPEP § 608.01(m).

Claim Rejections - 35 USC § 112, second paragraph

1. Claim 24 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 24 references the "apparatus as in claim 23". Parent claim 23 does not provide antecedent basis for an apparatus since it is a method claim. Clarification and/or

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1 - 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kerr et al. (US 6,243,667). Kerr et al., in the field of communications, teaches a method and apparatus using an M-trie data structure for routing of packets. Regarding independent claims 1 and 16, Kerr et al. (US 6,243,667) teaches a method and apparatus with the M-trie data structure having a set of nodes, including a root node, inferior nodes and terminal nodes (fig. 4 and col. 7 lines 1-54) to permit proper processing of packets. Proper processing includes determination of the destination port for routing those packets and determination of whether access control permits routing those packets to the indicated destination (col. 1 lines 52-61). Kerr et al. teaches that proper treatment includes but is not limited to treatment required by the associated access control list, accounting information, encryption treatment, and "any special treatment for packets" (col. 4 lines 20-34). The entry in the flow cache includes a pointer to a rewrite function (e.g., demultiplexing/encapsulation) for the header of the packet (col. 4 lines 56-60). The routing device 140 (fig 1.) is disposed for receiving a set of packets 150 from the source device 120 and routing them to the destination device 130 (col. 2 lines 43-46). The routing device reads the information from the entry in the flow cache and treats the packet according to the information in the entry in the flow cache. (col. 5 lines 1-4). Mechanisms are provided to terminate the look up process (fig. 2 223, fig. 3 302). The routing device routes the packet to an output port, determines whether access is allowed for the packet, determines encryption treatment for the packet and performs "any special treatment" for the packet, all responsive to information in the entry in the flow cache (col. 5 lines 4-9, fig. 3 and col. 6 lines 35-41).

Kerr et al., does not disclose expressly the use of an opcode in the M-trie data structure to support the specialized treatment for the packets as described above. As noted above, ACL and special treatment entries can include functions and actions to be taken on the packets traversing the system. An opcode is a common and well-known method/structure by which a function or action is coded in software.

This method has the advantage of using a standard programming technique to realize a function or action in software or programmed machine environment. It would have been obvious for one of ordinary skill in the art at the time of the invention, when presented with an industry standard technique (namely, an opcode to perform a action/function), to apply the use of the opcode, to the M-trie data structure of Kerr et al., with the motivation to arrive at a system that improves performance by allowing specialized features to be implemented in the system using an industry standard technique.

1. Regarding dependent claims 2-15 and 17-26, Kerr et al. provides a method and apparatus that also includes (col. 11 lines 55-61) the use of: access control information (i.e., ACL), queuing information (i.e., QoS and CoS parameters) and policy information/any specialized treatment (i.e. opcodes) based on information in the packet (col. 3 lines 21-34) as required by the claims.

Citation of Relevant Prior Art

1. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Kerr et al. (US 2001/0051864 and US 6,590,894) disclose the

use of M-Trie data structure for routing and access control of packets. Bremer et al. (US 6,553,002), Strombergson (WO 00/77984), Borg et al. (WO 99/59303), Jennings et al. (GB 2,350,534), Cheriton et al. (US 6,091,725) discloses various arrangements for routing of packets and message flows using Trie data structures. Hughes (US 6,308,219) discloses a similar arrangement and also notes Quality of Service (QoS), uni-cast, multi-cast, and "other information" can be accommodated in the M-Trie data structure (col. 6 lines 12-19).

Examiner Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lawrence Baranyai whose telephone number is (703) 305-8707. The examiner can normally be reached on Monday-Thursday: 6:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu can be reached on (703) 308-6602. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-9700.

lb

HUY D. VU
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